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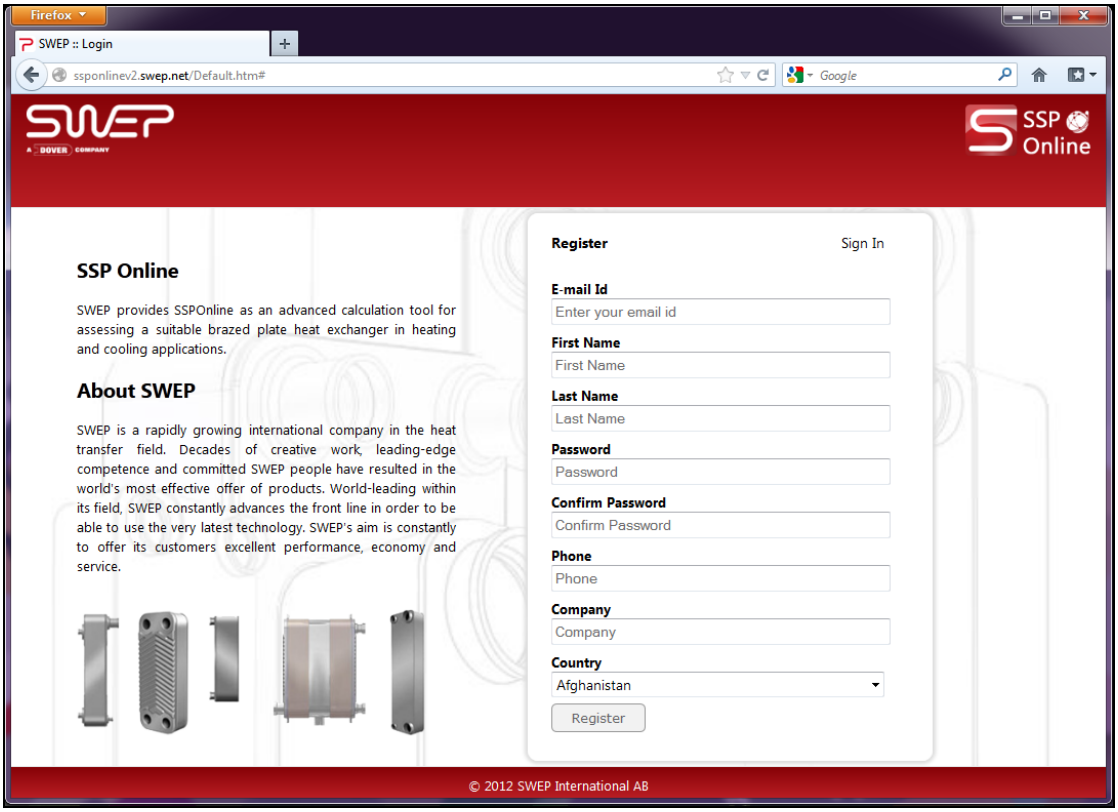
User Manual

User Registration

Click on “Register” link in the start page.


Firefox
SWEP :: Login
ssponlinev2.swep.net/Default.htm#
Google
SSP Online
SSP Online
SWEP provides SSPOnline as an advanced calculation tool for assessing a suitable brazed plate heat exchanger in heating and cooling applications.
About SWEP
SWEP is a rapidly growing international company in the heat transfer field. Decades of creative work, leading-edge competence and committed SWEP people have resulted in the world's most effective offer of products. World-leading within its field, SWEP constantly advances the front line in order to be able to use the very latest technology. SWEP's aim is constantly to offer its customers excellent performance, economy and service.
Register
Sign In
E-mail Id
Enter your email id
First Name
First Name
Last Name
Last Name
Password
Password
Confirm Password
Confirm Password
Phone
Phone
Company
Company
Country
Afghanistan
Register
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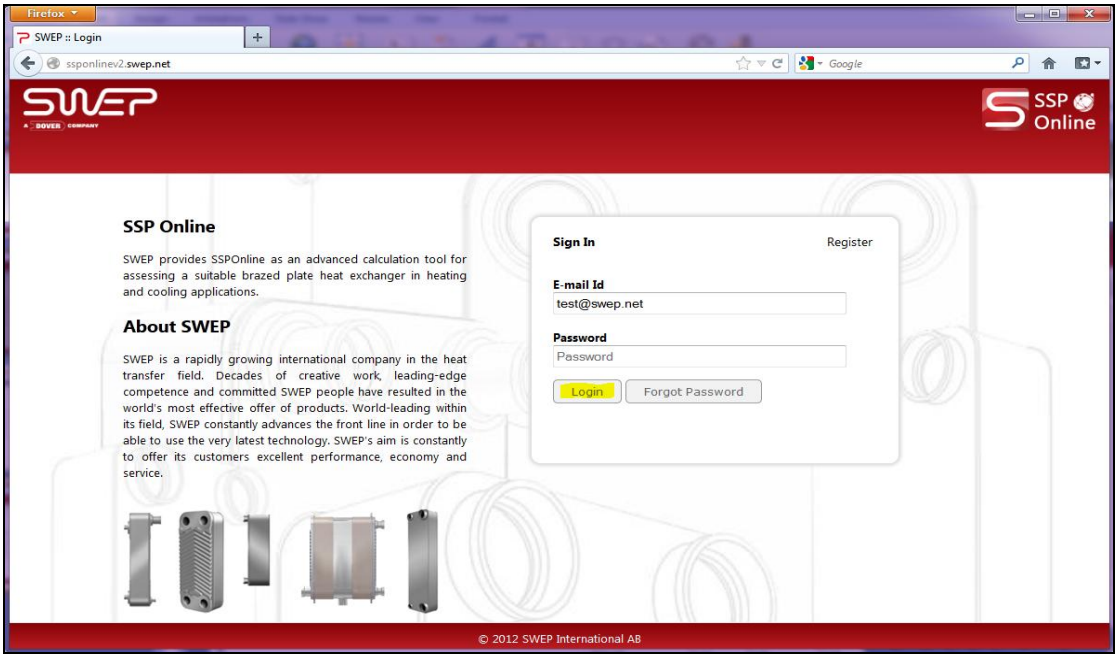
- Enter your details with a valid Email id and click on register.
- A verification mail will be send to your Email address, with a confirmation link.
- Click on the link to confirm your Email Id.

Login


SWEP :: Login
ssponlinev2.swep.net
SSP Online
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Sign In
Register
E-mail Id
test@swep.net
Password
Password
Login
Forgot Password
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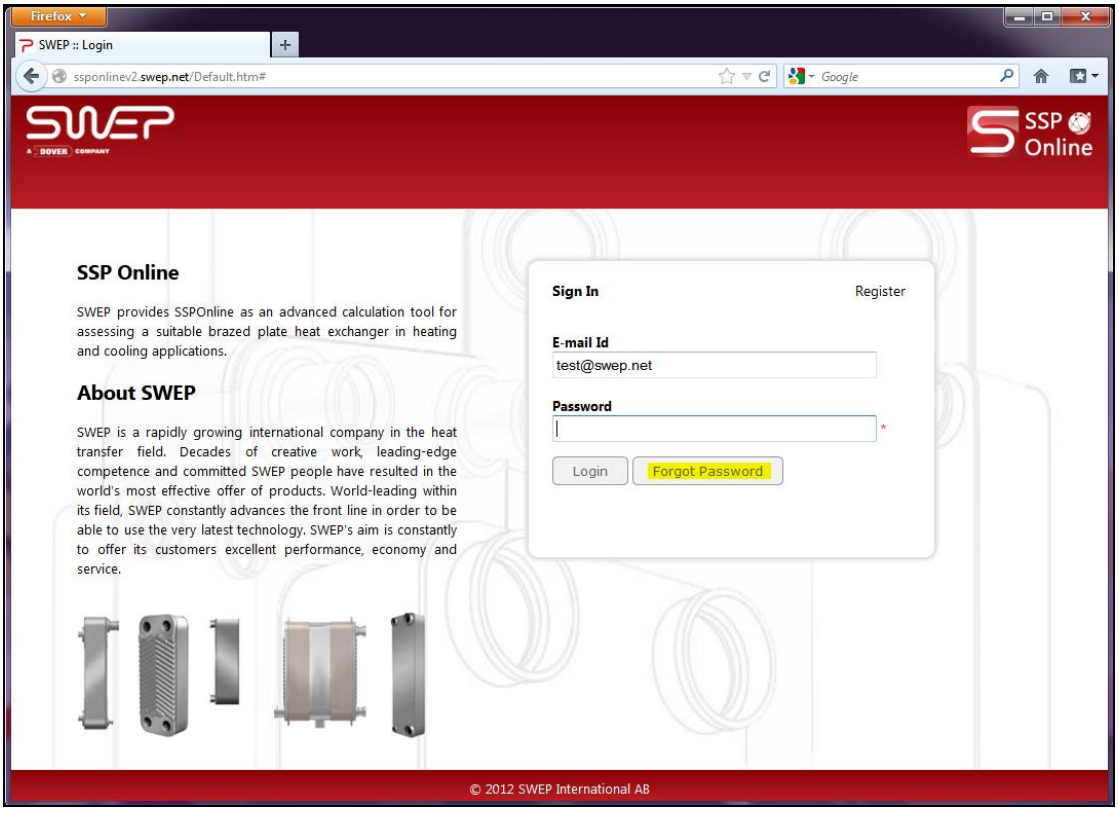
- Now enter your user name and password and click on Login.

Forgot Password


SWEP :: Login
ssponlinev2.swep.net/Default.htm#
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Sign In
Register
E-mail Id
test@swep.net
Password
Login
Forgot Password
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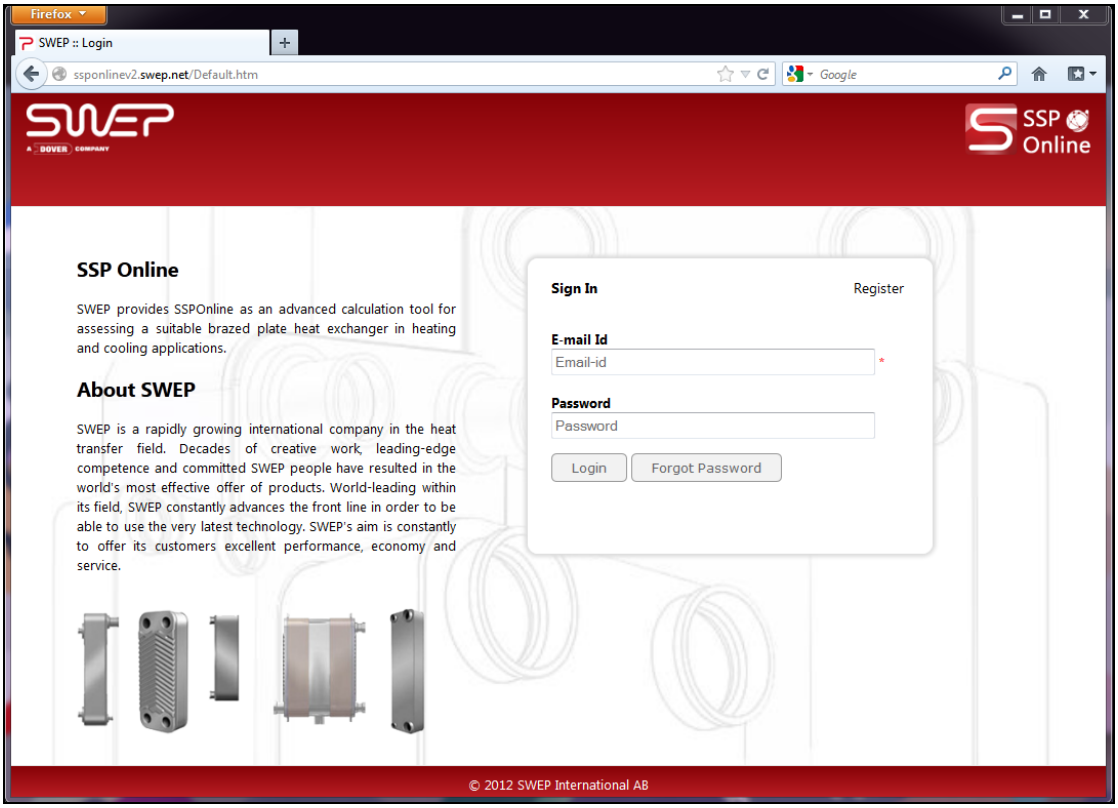
- Enter your registered e-mail id and click on Forgot Password button.
- The new password will be sent to your e-mail id from ssp@swep.net with the subject as “SSP Online - Your Password has been reset”.

Home Page


Firefox
SWEP :: Login
ssponlinev2.swep.net/Default.htm
SSP Online
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Sign In
Register
E-mail Id
Email-id
Password
Password
Login
Forgot Password
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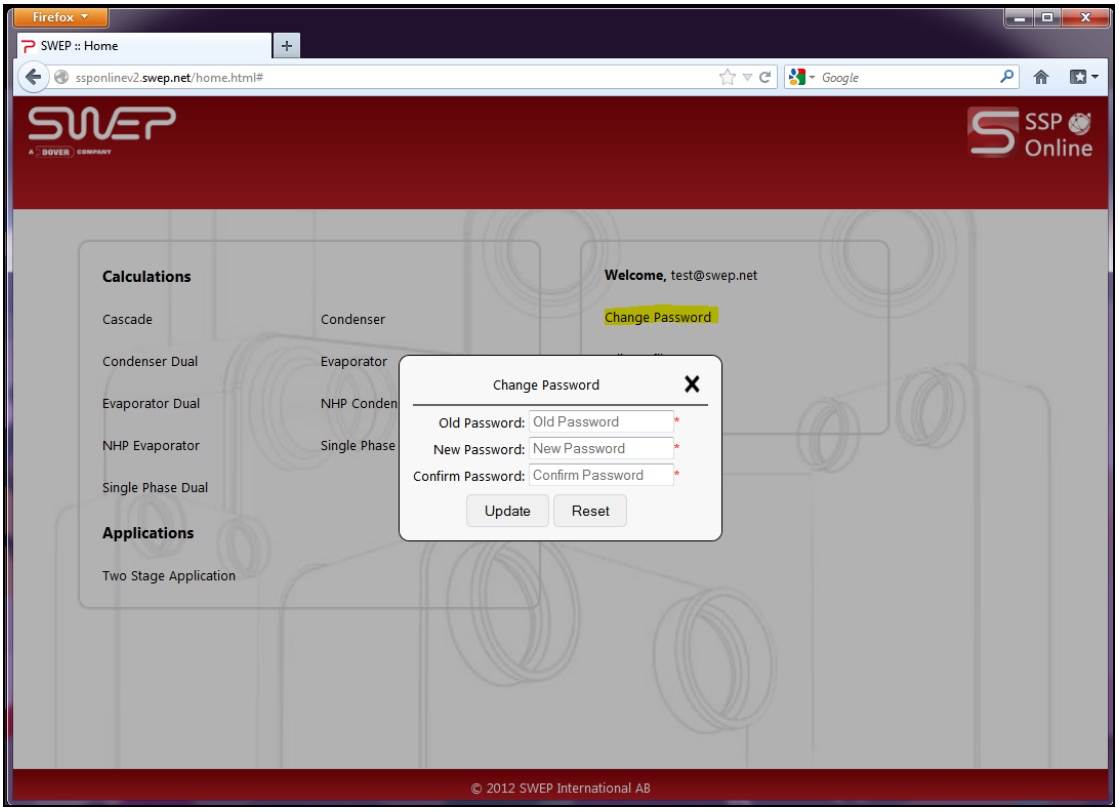
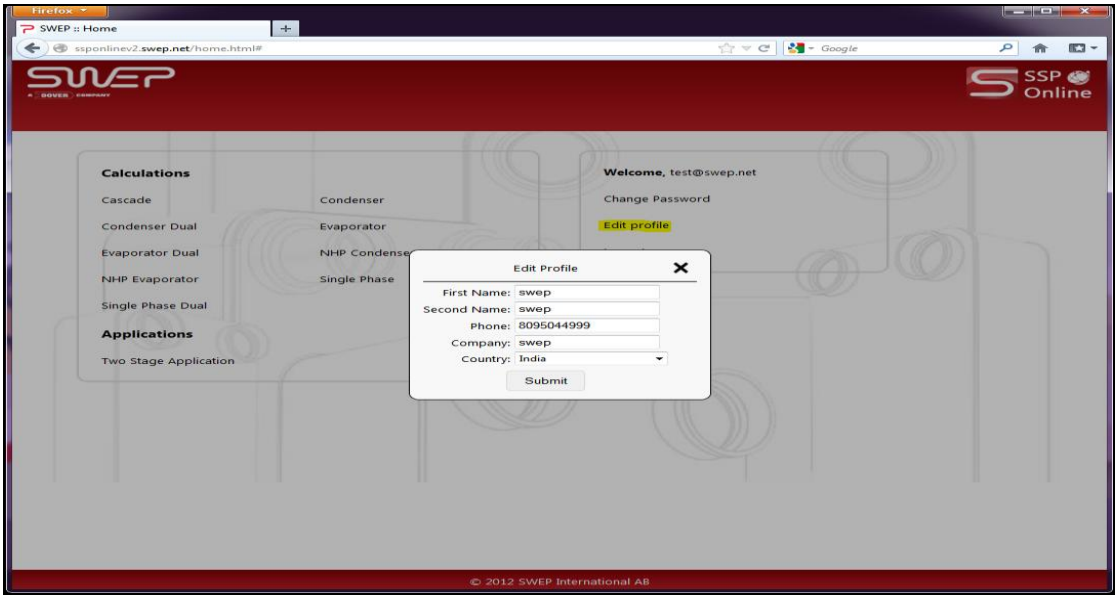
This is the home page, where we can Perform Calculations, Change password, Edit profile or Logout.

Change Password



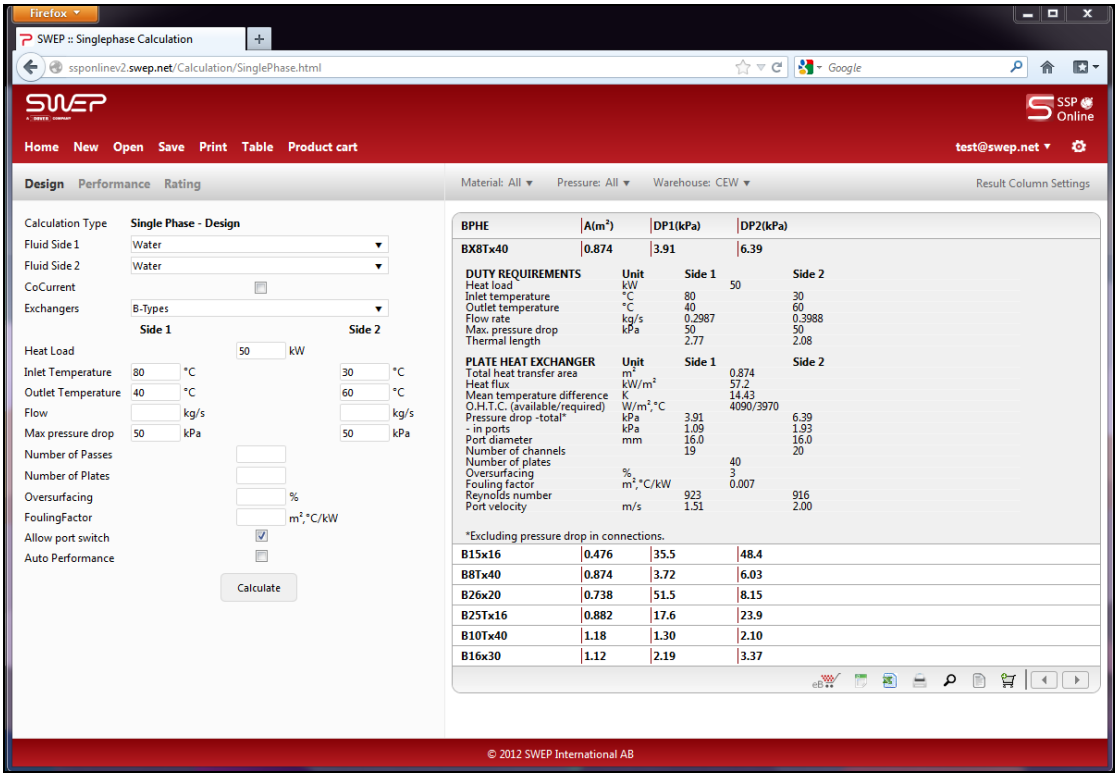
- Change your password by clicking on "**Change password**" from home page.
- Enter your Old password and new password, click on update.

Edit Profile



Edit your profile by clicking on “**Edit profile”** from home page.

Calculation


SWEP :: Singlephase Calculation
Home New Open Save Print Table Product cart
test@swep.net
Design Performance Rating
Calculation Type Single Phase - Design
Fluid Side 1 Water
Fluid Side 2 Water
CoCurrent
Exchangers B-Types
Side 1 Side 2
Heat Load 50 kW
Inlet Temperature 80 °C 30 °C
Outlet Temperature 40 °C 60 °C
Flow kg/s kg/s
Max pressure drop 50 kPa 50 kPa
Number of Passes
Number of Plates
Oversurfacing %
FoulingFactor m²,°C/kW
Allow port switch
Auto Performance
Calculate
BPHE A(m²) DP1(kPa) DP2(kPa)
BX8Tx40 0.874 3.91 6.39
DUTY REQUIREMENTS Unit Side 1 Side 2
Heat load kW 50
Inlet temperature °C 80 30
Outlet temperature °C 40 60
Flow rate kg/s 0.2987 0.3988
Max. pressure drop kPa 50 50
Thermal length 2.77 2.08
PLATE HEAT EXCHANGER Unit Side 1 Side 2
Total heat transfer area m² 0.874
Heat flux kW/m² 57.2
Mean temperature difference K 14.43
O.H.T.C. (available/required) W/m²,°C 4090/3970
Pressure drop -total* kPa 3.91 6.39
- in ports kPa 1.09 1.93
Port diameter mm 16.0 16.0
Number of channels 19 20
Number of plates 40
Oversurfacing % 3
Fouling factor m²,°C/kW 0.007
Reynolds number 923 916
Port velocity m/s 1.51 2.00
*Excluding pressure drop in connections.
B15x16 0.476 35.5 48.4
B8Tx40 0.874 3.72 6.03
B26x20 0.738 51.5 8.15
B25Tx16 0.882 17.6 23.9
B10Tx40 1.18 1.30 2.10
B16x30 1.12 2.19 3.37
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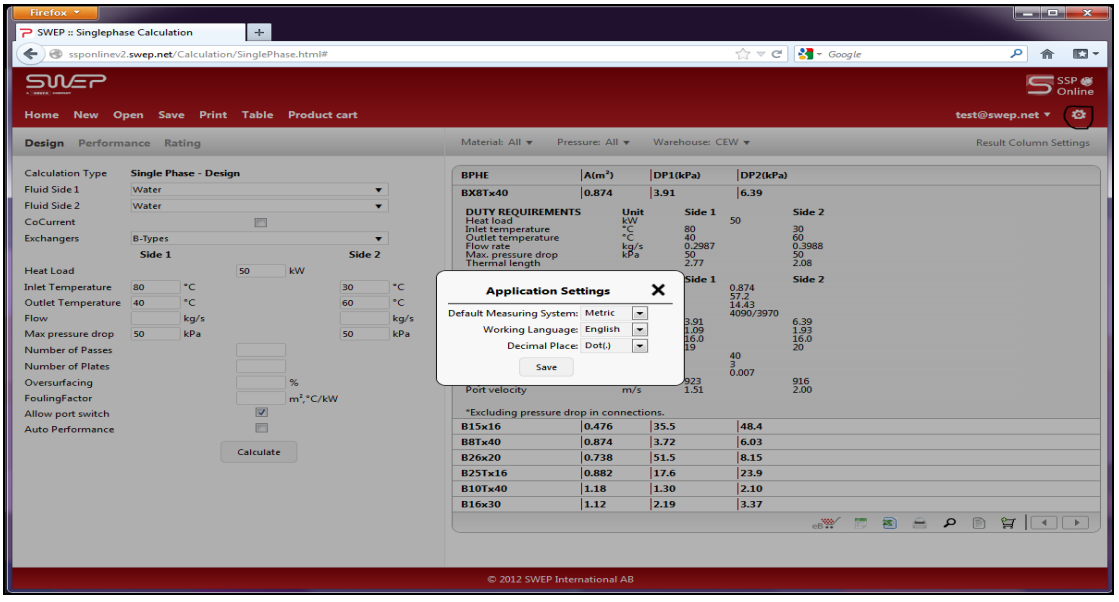
Enter valid inputs and click on Calculate button in the input panel. All the valid BPHE result will be display on Result panel.

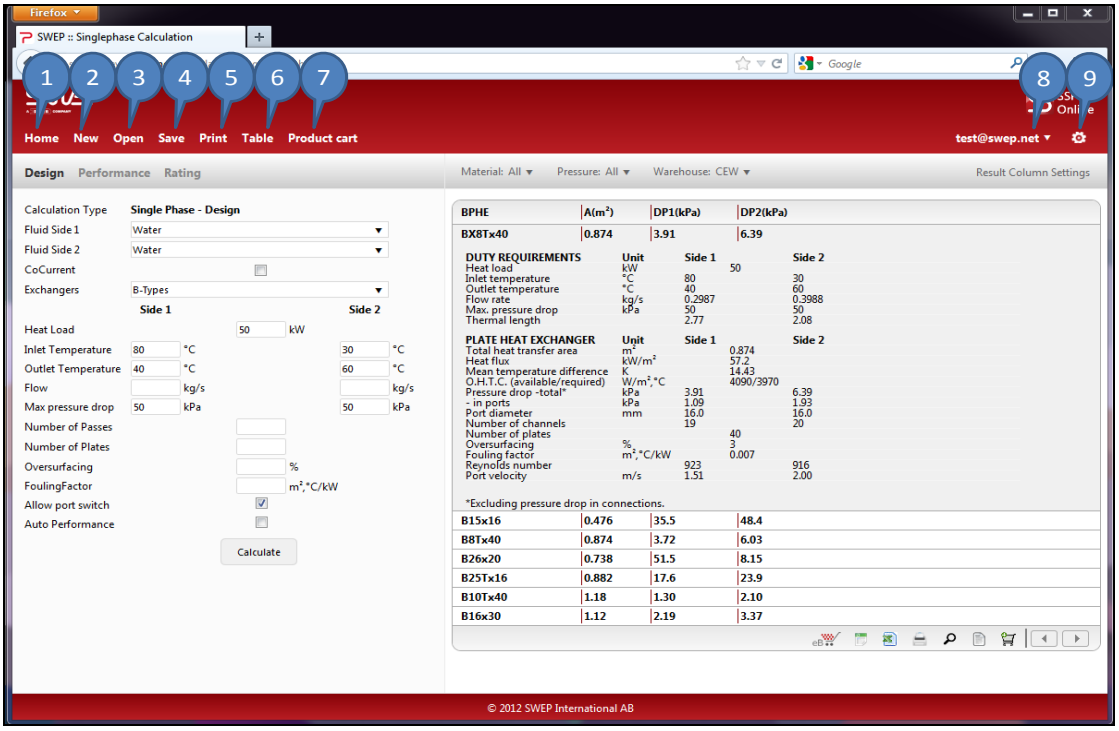
Application Settings



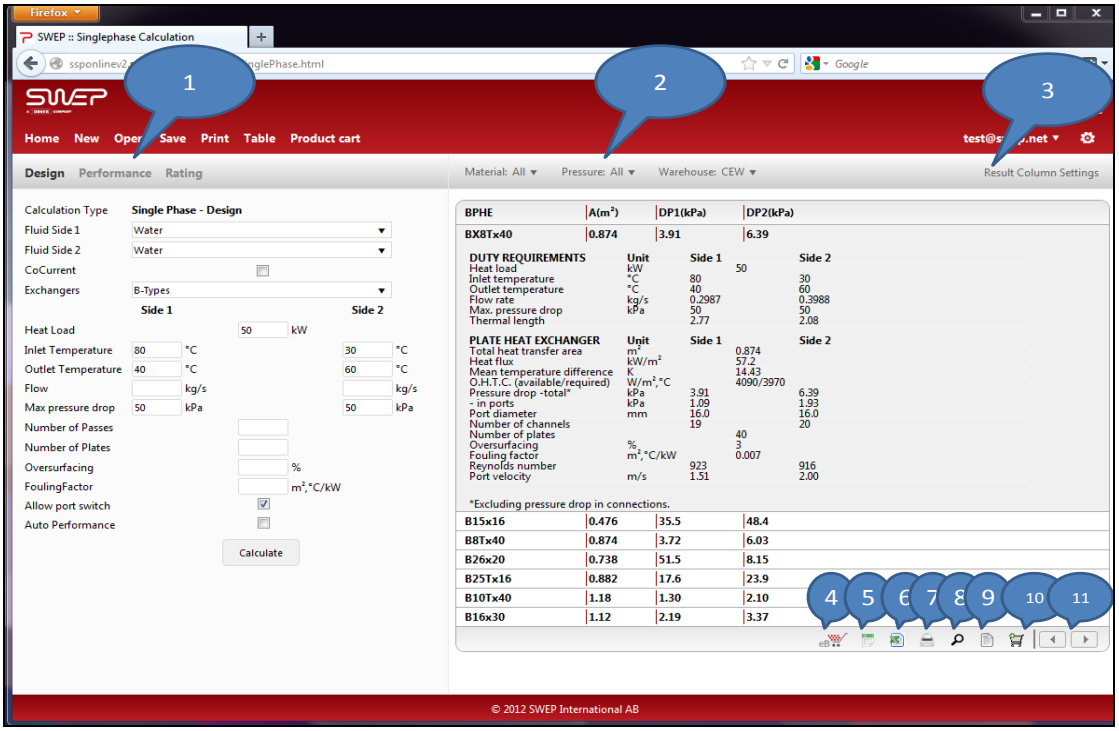
- To edit the Application settings Click on settings button .

- This setting could be used for editing the Default measuring system, Working Language or Decimal format.

Menu bar

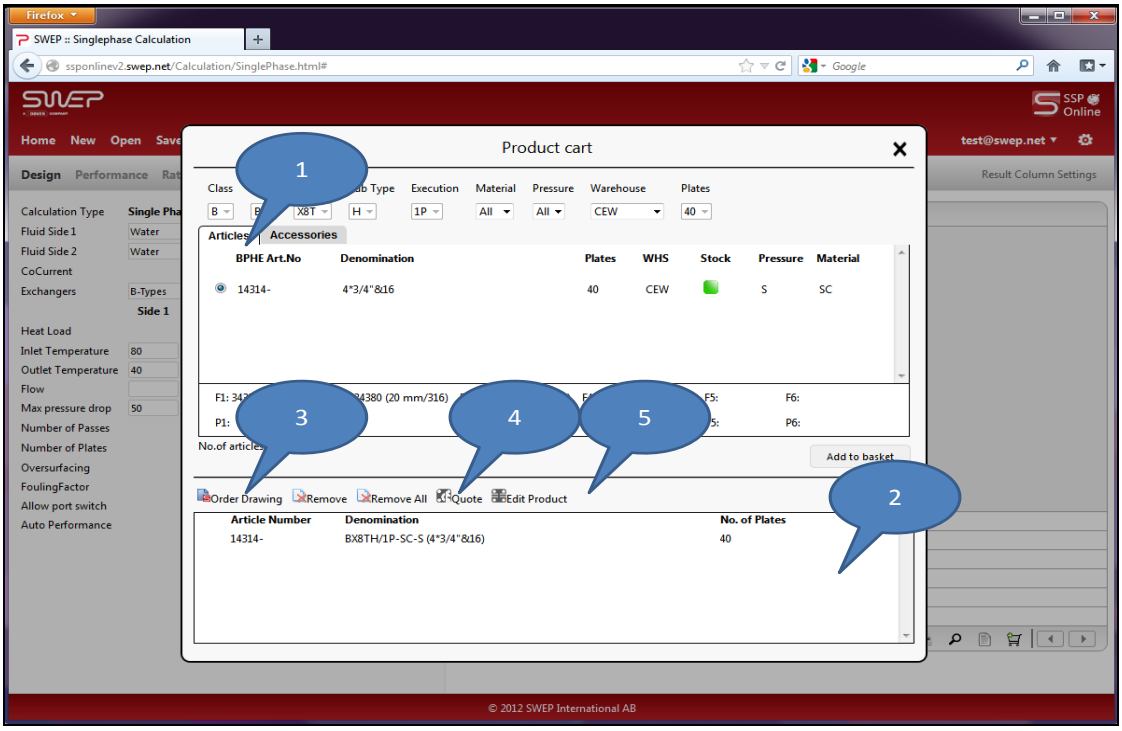


1. **Home -** Redirect to home screen.
2. **New -** To load new calculations/ application.
3. **Open -** Open saved calculation from local file or user profile.
4. **Save -** Save Input values for calculation as local file or user profile.
5. **Print -** Print technical report corresponding to the selected result.
6. **Table**
   - Export selected Result-Export selected result to Excel.
   - Export All Result-Export all result to Excel
   - Column Settings- Column settings for excel.
7. **Product Cart –** Is used for
   - Configure the articles and its corresponding accessories
   - Add product to the cart.
   - Order drawings and Generate Quotations
8. **User settings –** Is used to perform the following
   - Change password
   - Edit profile
   - Logout.
9. **Application settings –** Change the application settings.



1. **Calculation mode-** Contains Design, Performance or rating mode.
2. **Filter settings-** To set filter for material, pressure or warehouse.
3. **Result column settings-**To set result columns.
4. **eBusiness shop-** Links to EBusiness sites if Warehouse filter is set **CEW** or **NAW**.
5. **Export all results to excel-** Export all the calculated result data to Excel.
6. **Export selected results to excel-** Export selected calculated result data to Excel.
7. **Print-** To print the technical data for the selected BPHE.
8. **Full details-** To view the detailed information about the result.
9. **Product sheet -** To view the product sheet in http://www.swep.net site.
10. **Product cart-** Add the selected result to product cart.
11. **Scroll left/Scroll right-** Scroll results column to left/right if user set more columns which are invisible in the result window.

Product Cart



1- **Product selector** box with Articles and Accessories with respect to the selected result will be loaded. Here the product can be configure and added to the cart.
2- **Product browser** box contains the product added into the cart (* Maximum 5 products per user are allowed).
3- **Order Drawing** button can be used for ordering the drawings related to a selected product.
4- **Quote** button use to generate Quotation for selected Product.
5- **Edit Product** button is used to edit the products that are available in the Product browser

Additional information

1. As of now only one calculation could be perform at any instance of time. Support for multiple calculations will be provided in future.
2. With respect to the web browser support, this application is supported for Internet Explorer 9 and above.
3. For windows XP user's alternative browser like Google chrome or Firefox can be used.

Explanations to Information and Warnings in SSP Online

Single phase

Port velocity on primary side is high (XXX)

Possible erosion in the connections and ports, due to high liquid flow. Try to decrease mass flow and/or select BPHE with larger ports. NB! SSP indicates the PORT velocity, never the connection velocities. If you are using titanium plates and connections, you can tolerate a slightly higher velocity up to 6.5 m/s.

Min wall temperature on primary/secondary side is below the freezing point (XXX)

The minimum wall temperature is below the freezing point of the specific fluid. Design during these conditions is not recommended.

Condenser

Pressure drop in condenser is XXX % of inlet pressure

The pressure drop through the condenser is not negligible in relation to the total pressure. The relatively high pressure drop may affect the condenser performance negatively.

Double vapor inlet connections

This message just points out that the calculation was performed using the double vapor connection option set, i.e. with two vapor inlet connections.

Inlet port velocity on primary side is high (XXX m/s > 100 m/s)

This message is shown when the estimated two-phase channel inlet velocity is greater than 100 m/s and is a very strong signal indeed to rerun the case using a heat exchanger with larger port diameter to avoid the possibility of erosion of the plate. The channel velocity refers to the velocity on the edge of the plate in the very beginning of a channel.

Port velocity on secondary side is high (XXX > 5.5 m/s)

Possible erosion in the connections and ports, due to high liquid flow Try to decrease mass flow and/or select BPHE with larger ports. NB! SSP indicates the PORT velocity, never the connection velocities.If you are using titanium plates and connections, you can tolerate a slightly higher velocity up to 6.5 m/s.

Inlet channel velocity on primary/secondary side is high (XXX m/s > 100 m/s)

This message is shown when the estimated two-phase channel inlet velocity is greater than 100 m/s and is a very strong signal indeed to rerun the case using a heat exchanger with larger port diameter to avoid the possibility of erosion of the plate.

Inlet port recovery unreasonably high. Design questionable

The pressure recovery in the inlet port is more than one third of the total pressure drop causing a pressure increase of more than 5 %. If this message is shown, it is

recommended that the case is rerun using a heat exchanger with larger port diameters.

Maldistribution on secondary side may reduce HTC more than 5 %

Channel mal distribution of secondary side (side 2) might reduce the heat transfer coefficient with more than 5 %. Warning comes for very high flows through the heat exchanger. Rerun with an exchanger having a higher NTU-value and/or larger port diameters.

Very high heat flux not experimentally certified (XXX kW/m²)

The evaporation and condensation verification tests in the SWEP laboratory are for practical reason maximized in heat flux. This warning show that design is above these test points. Design may still be valid but check with SWEP sales representative for very high values, i.e. for evaporators and condensers above 20 kW/m^2.

Pressure drop for full gas flow: XXX kPa

When you run the program using the heat recovery option, this message displays the total pressure drop in the heat exchanger if the gas of inlet conditions was flowing alone without condensation, i.e. if secondary side is inactivated.

Evaporator

The vapor pressure drop is XXX

When the vapor pressure drop is more than 20% of the inlet pressure this message is printed to bring to your attention that there is an unreasonable pressure decrease in the heat exchanger.Try to rerun using a heat exchanger and/or channel type that produces a lower pressure drop.

Partial film boiling in the two-phase zone

Temperature difference between evaporating side and secondary side is very high, causing a instable gaseous film form on heat exchanger area, denying admittance of more refrigerant. Design in this region is definitely not recommended since the heat transfer will fluctuate strongly. Formation and collapse of gaseous film will result in instable evaporation. Redesign with less temperature difference to reach nucleate (normal) boiling or increase temperature difference to reach the complete film boiling zone.

Complete film boiling in the two-phase zone

Temperature difference between evaporating side and secondary side is very high, causing a stable gaseous film form on heat exchanger area. The prediction when complete film boiling is a bit uncertain. If you have a possibility of adjusting the temperature difference so that the vaporization is taking place in the nucleate boiling region, you are recommended to do so. Complete film boiling is preferred before partial film boiling.

Exit channel velocity primary side XXX > 100 m/s

This message is printed when the estimated two-phase channel exit velocity is greater than 100 m/s and is a very strong signal indeed to rerun the case for a heat exchanger with larger port diameter to avoid the possibility of erosion of the plate. The channel velocity refers to the velocity on the edge of the plate in the very beginning of a channel.

High exit port pressure drop, greater than 30% of total pressure drop

A high volume flow through the exit port will induce high pressure drop. For evaporators this will increase the risk of maldistribution. Lower than predicted capacity is a possible result. Higher number of plates may not increase performance since maldistribution also will increase simultaneously. Redesign using a heat exchanger with larger port diameter. Alternatively, double gas exit pipes may be fitted, halving the port velocity.

Low vaporization pressure, less than 0.015 bar

Prediction always becomes less certain because of the sensitivity of many operating parameters in deep vacuum. Some data down to a pressure of 0.015 bar indicate that the program still gives good results at that level of vacuum. However, the majority of data on hand are for higher pressures.

Pressure drop in V-ring is X.X - Y.Y bar

This message is displayed to make the user aware of the fact that there is an additional pressure drop in the fluid distribution system. The two values are displayed as an approximate max and min value, depending on the dynamic operating conditions to facilitate selection of appropriate size of expansion valve. Please note that the pressure drop through the distribution device is before the heat transfer area and will therefore not affect the evaporation temperature.

The distribution must be perfect between parallel units

When parallel units are required, care must be taken at installation, so that the flow rate distribution between the units becomes as equal as possible.

The vaporization side maldistribution is XX %

This message is printed if the predicted mal distribution is greater than 12.5 %. A maldistribution of 50 % means that the channel closest to the inlet will have a flow rate of 1.5 times the average and the channel at the other end will have a flow rate of only 0.5 times the average. SSP design have taken in account for the reduced efficiency of maldistribution but operation with high mal distribution effects is not recommended due to risk of instable operation. Redesign using an BPHE with a higher NTU-value and/or port hole diameters or use a BPHE with a distribution device.

Too small temperature difference might cause underperformance

Though the calculation is theoretically correct, this message warns that the exchanger might be thermally too short to operate properly for the displayed temperature difference. For operation with very small temperature differences the performance is more sensitive to disturbances or local and/or fluctuating differences in heat transfer. Redesign using an BPHE with a higher NTU-value and/or increase temperature difference.

Superheat less than 5 K might cause underperformance.

Though the calculation is theoretically correct, this message warns that there might be some droplets of liquid in the leaving gas, which might cause damage to the compressor.

Vapor velocity probably too low to carry oil

When the channel velocity becomes less than 0.3 m/s SSP show this warning. The oil droplets may not be transported out of the heat exchanger leading to reduced heat transfer due to oil film fouling. Problem increase for low temperature evaporators (<-20°C) due to the high viscosity of the oil. Redesign with less number of plates or higher refrigerant flow. Downwards evaporation is also a possible solution.

Port velocity on primary/secondary side > XXX

Possible erosion in the connections and ports, due to high liquid flow Try to decrease mass flow and/or select BPHE with larger ports. NB! SSP indicates the PORT velocity, never the connection velocities.

Support

For any queries and support contact ssp@swep.net, (in English only) with the Subject starting with “SSPOnline:” Ex. Sub: “SSPOnline- Issue with Login.